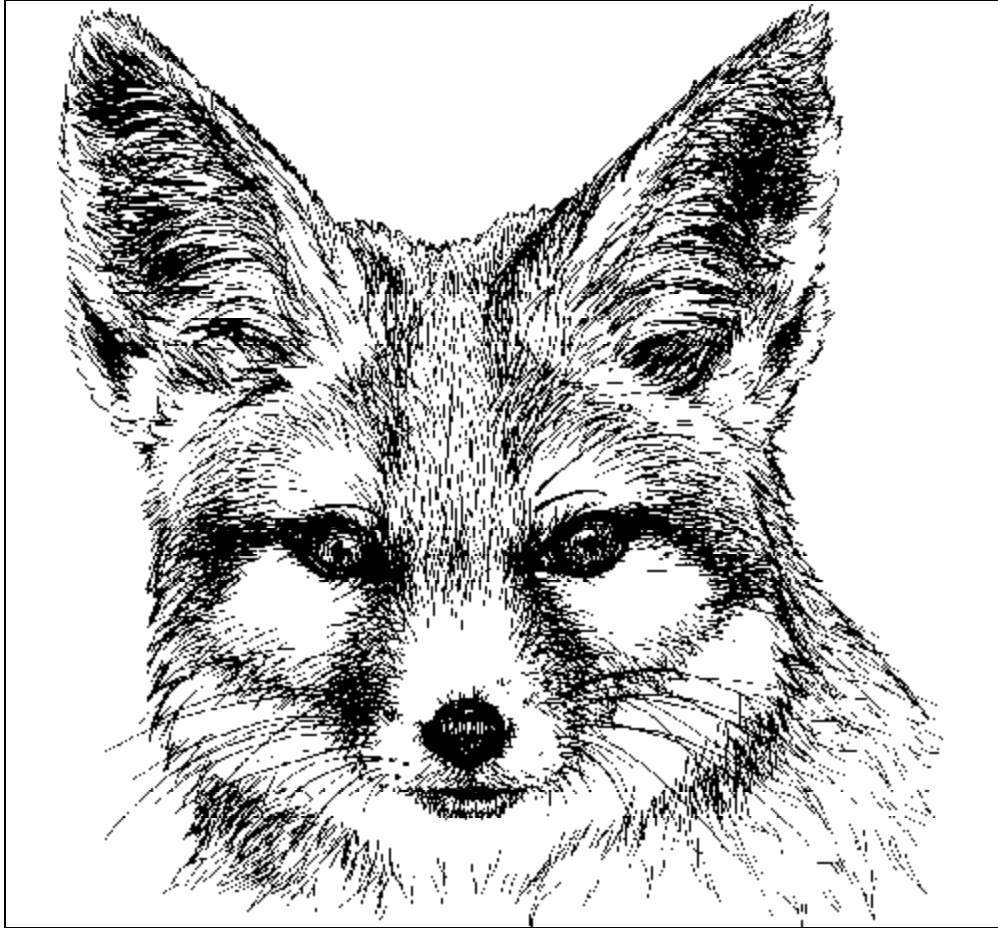


# Kit Fox

*(Vulpes macrotis)*



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*The kit fox of the southwestern United States and northwestern Mexico is the smallest yet has the largest ears of any other North American foxes.*

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Kit foxes (*Vulpes macrotis*) belong to the family Canidae, which also includes wolves, coyotes, red foxes and gray foxes.

The kit fox is a highly specialized animal adapted to desert and semi-arid areas of western North America. It has sensitive eyes which allow it to hunt in the cool of the evening. Its huge ears help it to locate prey in the dark and also serve to dissipate body heat. The coloration of its coat blends with its surroundings. In addition, the kit fox uses burrows to avoid both predators and extreme temperatures.

In Utah, kit foxes live in cold desert regions at elevations below 5,500 feet. These desert areas tend to be cold in the winter and hot in the summer with under 10 inches of precipitation annually. Kit foxes may be found throughout the Great Basin area as well as in the southwestern and southeastern parts of the state.

Since the early 1950s, kit foxes have gradually extended their range into Carbon, Grand and San Juan counties. Although the severity of Utah winters generally restricts kit foxes from living in the northern portions of the state, small populations have been reported in Box Elder County.

## Description

The kit fox is the smallest member of the canid family in North America. Mature adults measure 15 to 20 inches in length with a 9 to 12 inch long tail. They stand 11 to 12 inches high at the shoulder, and adults weigh from 3 to 4 pounds.

The color of the kit fox is pale gray, tan or sandy with a slightly darker back. It has a cream-colored throat, belly and inner ears. A black or brown patch is always located on each side of the muzzle (nose), and the tail has a dark tip.

## Habitat

Kit fox habitat is usually sparsely vegetated flat areas in the desert. Common range plants such as grey molly, greasewood, shadescale and seepweed are abundant in these areas. These low growing shrubby communities provide excellent cover for the kit fox.

Being nocturnal, kit foxes emerge from their dens at sundown to hunt. Moving in an irregular pattern, they hunt in thick vegetation such as fence rows. Rolling hills and gully washes offer additional cover for both travel and hunting.

Kit foxes are somewhat territorial. The fox will establish a territory or home range to protect limited food resources. However, because of their small size, kit foxes usually don't protect their territories as vigorously as other canids. A typical home range can support about three foxes per two square miles.

## Food Habits

Even though kit foxes are in the order Carnivora, they are opportunistic omnivores. Black-tailed jackrabbits, cottontails and kangaroo rats are the main food items eaten by kit foxes; but they also eat grasshoppers, horned toads, lizards, rodents, ground nesting birds, grasses and fruits. Water is obtained from the body fluids of their prey.

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*The large ears of the kit fox help it to locate prey at night and shed body heat during the hot days. These pups are looking out from a den site.*

## Den Characteristics

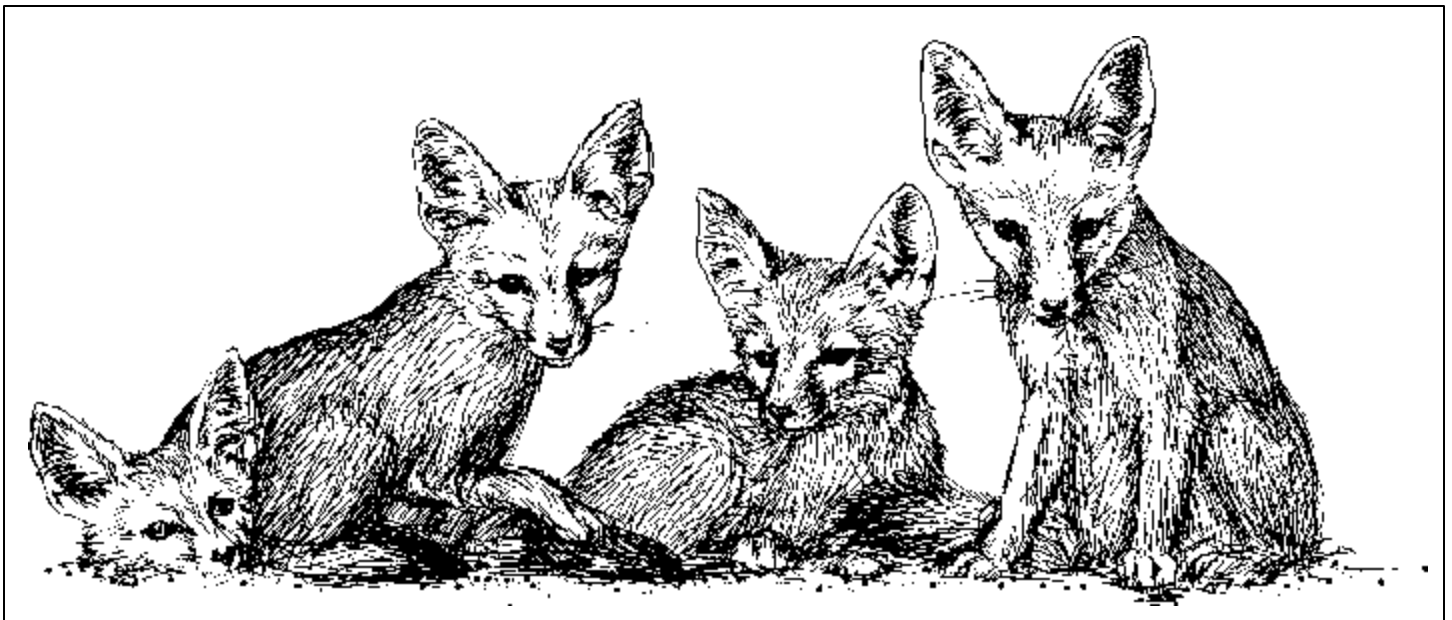
Kit foxes live in dens dug in the desert soil. Kit foxes have definite preferences and permanent ties to specific den sites. They tend to select sites in barren areas with silty, clay soil that are higher than the surrounding terrain. These sites offer them increased visibility of the area immediately around the den. The silty, clay soils also make it easier for the foxes to excavate the den. Although kit foxes frequently dig their own burrows, they also enlarge already existing rodent dens. If old fox den sites are available, they will use them instead of digging a new one.

When kit fox populations are high, several active dens may be located within a single home range; but these dens will be used only by members of the same family group.

Dens usually start out with one entrance; and, as the den is used over a number of years, several other entrances, tunnels and a birthing chamber may be added. Old dens may have as many as seven entrances.

The den opening is usually narrow in order to prevent badgers and coyotes from entering the den. Kit foxes defecate outside their den entrance and around the den site. The chambers inside the den are clean and lined with grasses.

Recent research suggests that kit foxes are highly sensitive to den site disturbances. If any entrances are blocked or are caved in, the foxes immediately move to another den. Protection of suitable den sites, therefore, is critical to kit fox populations.





*typical keyhole shape of den entrance*

## Reproduction

Kit foxes, in most circumstances, do not mate for life. A male and a female may stay together for more than one year after breeding but seldom for more than two years. When pairs separate, one will usually stay with the den. Kit foxes begin breeding when they reach one year of age. Breeding begins in late December and ends in February. The normal gestation period is 49 to 55 days. Pups are born in March and early April inside the den's grass-lined birthing chamber.

The female kit fox remains inside the den with the pups, nursing them while the male hunts for food. Pups do not emerge from the den until they are at least a month old.

The kit fox pups begin to hunt for themselves when they are about five months old. Shortly thereafter, the pups disperse from the parents' den. This dispersal helps to maintain the genetic diversity of the population.

## Behavior

Unlike myths that portray the kit fox as skittish, shy and wary, many observers report them to be curious and alert. This behavior frequently puts them at risk when they're inhabiting areas near human populations.

Because their home range is typically dry and hot, water and energy conservation is a high priority. Kit foxes avoid high daytime temperatures by limiting most of their activities to the cool nights. This type of behavior is also characteristic of other desert mammals such as the black-tailed jackrabbits and cottontails, the primary food sources for the kit fox.

## History

Early in the 1800s, kit foxes were quite abundant, ranging from southern Alberta in Canada to northern Mexico. Then around 1855, bounty hunters, employed by a growing sheep industry, distributed large amounts of strychnine baits in hope of eliminating major sheep predators, like wolves and coyotes. Unfortunately, kit foxes were often the first to feed on a poisoned carcass, and their populations markedly decreased.

That the kit fox in the west and southwest is being found currently in large numbers is largely a result of more discriminate predator control programs. Today the number of kit foxes found in any one area depends upon several factors, including habitat availability, food availability, sex and age distribution and time of year. Of these, the availability of suitable habitat and the availability of appropriate food sources are the two most important limiting factors.



*tracks of kit fox, in snow*



*track of kit fox, in dust*



*droppings of kit fox*

# Management

The kit fox is protected by the Utah Wildlife Code and can only be hunted during the legal hunting season. All hunters and trappers must purchase a furbearer license.

Habitat management and increased restrictions on the use of poisons have helped the kit fox become re-established in Utah. Habitat loss and disturbance remain the biggest threats to kit fox populations.

The increased use of areas with kit fox populations by off-road vehicles and recreationists is a major threat to kit foxes. Activities in these areas often disturb den sites, caving in den openings or causing the animals to abandon the dens.

The Utah Division of Wildlife Resources monitors kit fox population trends and identifies critical habitat through surveys and studies conducted by wildlife biologists. In 1993, the Division of Wildlife Resources initiated a three-year study with Brigham Young University to determine the best method to monitor population trends of kit fox throughout the state. Additional information collected to aid in managing kit fox includes: (1) potential and current distributions, (2) trends of available prey base species, and (3) harvest levels.

## What You Can Do

- People operating motorbikes and dune buggies in Utah's west deserts should avoid den sites.
- People finding dens should maintain a suitable distance from them or preferably move to another area.
- Sporthunters hunting black-tailed jackrabbits often find dens and encounter curious kit foxes. These hunters should avoid disturbing the den sites and the foxes.
- For more information on foxes in Utah, contact the Mammals Program Coordinator, Utah Division of Wildlife Resources, 1594 West North Temple, Suite 2110, Salt Lake City, UT 84116.

## Additional Reading

- Burt, W.H., and R.P. Grosseheider. *A Field Guide to the Mammals*. The Peterson Field Guide Series. Houghton Mifflin Company, Boston.
- Chapman, J., and George Feldhamer, editors. *Wild Mammals of North America*. The Johns Hopkins University Press, Baltimore, 1982.
- Murie, O.A. *A Field Guide to Animal Tracks*. The Peterson Field Guide Series. Houghton Mifflin Company, Boston, 1974.

## Other Utah Foxes

### Red Fox (*Vulpes vulpes*)

total length      35 to 40 inches  
tail length        13 to 17 inches  
shoulder height   15 to 16 inches

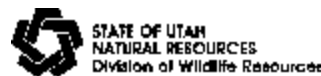
Red foxes are easily recognized by their distinctive reddish coat, large bushy tail tipped with white, and the black on the nose, lower legs and backs of the ears. Found throughout most of Utah, red foxes can live in many different habitats, including brushlands, riparian zones in semi-desert areas, edges of forest and farmlands. Their diet consists of small mammals, invertebrates, birds and plants.

### Gray Fox (*Urocyon cinereoargenteus*)

total length      31 to 44 inches  
tail length        8 to 17 inches  
shoulder height   14 to 15 inches

Gray foxes, with their gray backs and distinctive black, white and red facial markings, are found throughout most of Utah in rugged areas with dense vegetation and old fields. Gray foxes have a gray tail with a black streak down the middle and a black tip. Gray foxes are excellent climbers and use trees as foraging and resting places. Their dens are usually in brushy or wooded areas, often in the shade of boulders, cliffs or trees and are rarely marked with mounds. Their diet consists of small mammals, invertebrates, fruit and carrion.

*Wildlife Notebook Series No. 9 submitted by Utah State University Wildlife Management students Eric Jensen, Clare Poulsen, Mark Rogers and their professor, Dr. Terry A. Messmer; reviewed by Boyde Blackwell, Native Wildlife Furbearer Biologist; edited by Brenda Schussman; and illustrated by Jill Rensel. Funding provided by The Berryman Institute, Department of Fisheries and Wildlife, Utah State University, Logan, Utah. (Images may not be reproduced)*



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